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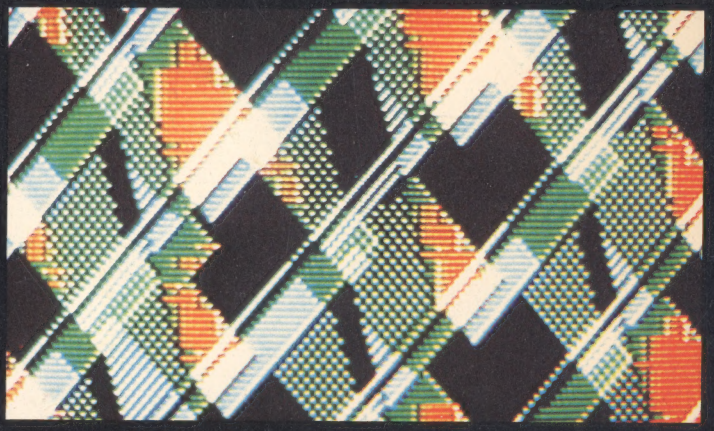
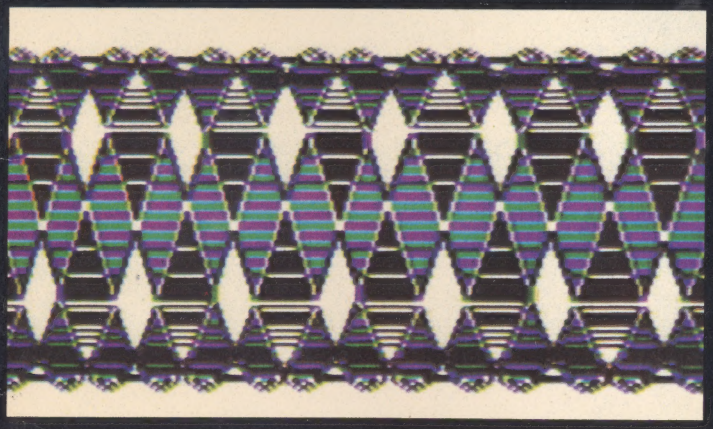
PAINTER POWER

BY ERIC PODIETZ





48K · Applesoft in ROM or a language card.

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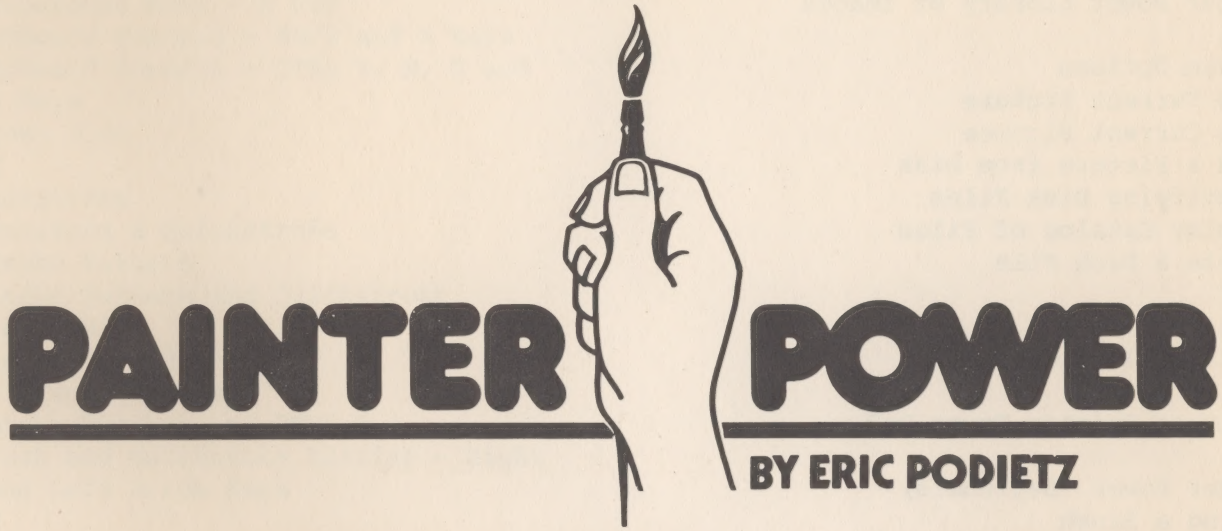

Kary –
Thanks for the interview
and for preserving our
little corner of history!
Eric Podietz 9/10/21

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INTRODUCTION

Painter Power is designed with varying levels of complexity that allow the user to create hi-res, computer graphics and then arrange them into a slide show. There are no pre-programmed designs that you redesign. Each piece produced by Painter is the unique result of the imaginative use of the flexibility offered by the program's various modes.

The pictures are shaped, altered and reworked by using either the keyboard, paddles, a joystick or combinations of these painting command tools. The computer artwork you create with Painter Power may be reproduced in hard copy with a hi-res, screen dumping program and a printer.

PRIMARY PROGRAM SELECTION MENU

1. View Current Picture
2. Save Current Picture
3. Load a Picture from Disk
4. Display Catalog of Disk Files
5. Delete a Disk File

A. Run Painter Power
B. Run Painter Power Advanced
C. Create a Slide Show
D. Run a Slide Show
I. General Instructions

NOTE: If you have already started a picture, you may bring up the primary Program Selection Menu immediately by hitting any key after the opening, title sequence that displays the title, author and producer of Painter Power.

If you are using the program for the first time and wish to begin painting immediately, go to Program Selection for instructions. The following section describes loading, saving, deleting and viewing pictures already stored on an initialized disk. Return to this section when you need the information.

PAINTER POWER LIBRARY OF IMAGES

You will need blank, initialized diskettes to store the pictures you create with Painter Power. Boot with an Apple System Master; type NEW and then remove the System Master. Place a blank diskette into your drive. To initialize the disk, type INIT HELLO. You may store about 12 pictures on one disk.

PROGRAM OPTIONS

View Current Picture (Option 1)

This feature allows you to see a picture brought up with option three, Load a Picture, without having to go to the specific painting mode used to make it (Beginners or Advanced). You will not be able to continue working on the picture using this option. You must go to one of the painting modes to do that. To see your painting after it has been loaded, press 1. If you press 1 without loading a

picture, you will see the opening Painter Power graphic that appears when you first boot the program.

Save Current Picture (Option 2)

This feature saves the current picture created in either painting mode (Beginners or Advanced) to your initialized disk. It has been placed in the primary Program Selection Menu in the event you mistakenly exit one of the painting modes and forget to save it. Press 2. A prompt will appear at the bottom of the screen asking for the name of the picture. Type in the title you would like to give it. Replace the Program disk with your initialized disk in the same drive before you press RETURN.

The Save Picture option may also be used in conjunction with the Load Picture option to transfer pictures from one disk to another. To do this, load the picture from your original disk that you would like transfered to the other disk (see option three); then press 2. At this point, switch disks placing the one you want the picture saved to into drive #1 and press the RETURN key. Your picture will then be saved on that disk.

After a particularly long and creative session, Painter will tell you if a disk is full and another one is needed to save your work. You will not be able to save a picture to the Program disk because it is locked.

Load a Picture from Disk (Option 3)

After pressing 3, a prompt appears asking you to type the title of the picture you would like to see. Place the disk the picture is on into drive #1 and press RETURN. If you used the Display Catalog option (#4) first and answered the prompt as to which drive the disk to be read is in (for those of you who have two disk drives), the Load option will automatically return to that drive for the picture.

Once the picture has been loaded, you may choose another program option, such as View Current Picture to see it, or transfer the picture from one disk to another, etc.

SPECIFYING DISK FILES

Before we continue to describe the rest of the options, you need to know that at various points in the program you will be asked to name a disk file for memory storage. You will be storing either a picture, a brush pattern, a set of brush patterns or a slide show you created. When you wish to load a picture or a brush pattern, etc., from memory, you first catalog your disk (option four) to see what is there. The name extensions of '.PIC' (for picture), '.PAT' (for a single brush pattern), '.SET' (for a series or set of brush patterns) and '.MOV' (for a slide show) appear after a file name to show what each file is. When you are asked for a file name for any of these file types, type only the file name and DO NOT include the extension. The one exception is when you want to delete a file.

Display Catalog of Files (Option 4)

This feature allows you to do a catalog of a disk to see what has been saved on it. Answer the prompt that appears that asks which drive, one or two, the disk is in that you want cataloged. The files will appear on the screen with the name extensions after each file name to show whether that file is a picture, a brush or a brush pattern set. To return to the menu, press RETURN.

Delete a Disk File (Option 5)

This feature deletes any file on a disk. Press 5. A prompt will ask you the file name. You must type the full file name including the extension, such as MONA LISA,PIC, to delete that file. Press RETURN. To bring up the menu, press the RETURN key again after the file has been deleted. This option will also delete non-Painter Power files.

NOTE: If you press the wrong number for an option selection you want to use by mistake, simply press RETURN and this will cancel the option choice.

PROGRAM SELECTIONS

What Does Painter Power Do?

The basic idea of Painter Power is: "Be able to paint in different colors with a brush of your own creation." You may use the keyboard, paddles (up to four of them) or a joystick to control the creation and movement of your brushes. It is a simple matter to alternate this control between the keyboard and paddles or joystick by simply pressing the '/' key, when you want to use the paddles or joystick, or one of the keyboard directional keys, such as the G or J keys to give control back to the keyboard (see the section on brush making).

The paddles and joystick are the most unrestricted in movement for making certain shapes and designs like swirls or making sharp dips. The keyboard moves up and down, left and right and at an angle by alternating pressing an up or down key with a left or right key. The effects that are so easily attained with the paddles or joystick can also be attained with the keyboard but it takes more time and patience and it will not look exactly the same.

Before you actually begin to paint, be sure to have an initialized disk ready if you wish to save these first efforts. Refer to Painter Power Library of Images for instructions.

It should also be noted that you may need extra equipment for your computer to accept the use of four paddles.

PAINTER POWER (BEGINNERS)

From the Program Selection Menu, press A for Painter Power. After reading the basic instructions, press any key and the Painter Power Beginners' Menu appears. At the top of the screen is a numbered list of colors that can be used as a background. Whenever you enter any painting mode in Painter, the background color is always set to white. To change this, press the number of the color you would like. To keep the background white, press the RETURN key. Once the color has been settled, a blank screen appears (called the monitor screen in this manual) with a brush ready to use with instructions below it. (At this point use the brush on the monitor screen. A full description of how to make your own brush will follow this section.) After reading the directions, press the P key to bring up the picture screen used in painting. If you decide you really don't like the background color, press the ESC key to return to the Beginners' Menu to change it. The picture you have been working on, though, will be lost unless you save it. Essentially you start over when you switch background colors. You may also use the C key to clear the design but leave the background color.

To save a picture you've been working on, press S after returning to the Beginners' Menu. At the bottom of the screen a prompt will appear asking you to type the name of this picture. Do so and press RETURN. Be sure the disk you want this picture stored on is in drive #1 before pressing the RETURN key.

The next option, Load, is very important and useful when you cannot continue working on a picture (someone else's turn to play with the computer!). Save what you have done so far using the Save option just mentioned above. When you are ready

to start working on your masterpiece again, bring up the Beginners' Menu and press L to load the picture from the disk. Be sure to place the disk the picture has been stored on into drive #1. When the prompt appears asking for the name of the picture, type it in and then press the RETURN key. Your picture will be displayed, ready for your next painting session, when you bring up the picture screen.

If you would like to see the instructions that appear just before the Beginners' Menu again, press the I key.

To leave Painter Power Beginners and return to the primary Program Selection Menu, press the E key.

Making a Brush

If you don't want to use the pre-programmed brush that is on the monitor screen, there are two methods available for making one of your own--using the keyboard or using your paddles. (From this point on, when paddles are mentioned, it should be understood to also mean the joystick.) Following the directions at the botton of the screen, press the M key. The monitor screen is now blank.

To start making your brush with the keyboard, hit either the J, G, Y or N key. Each of these keys controls a direction--the J key for right, the G key for left, the Y key for up and the N key for down. A dot appears each time you press one of these keys. The simple brushes will give you the most interesting results on your computer canvas. A short squiggle or a wiggle or an angle is fine. When you are satisfied with the shape of your brush, press the M key again and then the P key to get to the picture screen where your painting will be done. The picture screen will be the color you chose for your background.

To make a brush using the paddles, press the M key and the '/' key to give control to the paddles. One of your paddles is for right and left (also known as horizontal or 'X') and the other is for up and down (also known as vertical or 'Y'). Depending on where your paddles are set, dots will begin dancing across the monitor screen. The farther the paddles are turned away from center, the wider the spaces between the dots become. When the paddles are in their center range, the dots will appear closer together. Press the space bar at any time to stop the movement of the dots.

At the bottom of the screen is a list of keys with whimsical names. They are "'S'nail," "'T'urtle," "'R'abbit" and "'B'litz." These keys are your speed control keys used in making a brush and in painting with a brush. Snail is the slowest and Blitz is the fastest. You can guess what speeds Turtle and Rabbit are. Press one of the speed keys and the space bar and watch the difference in the rates of speed the dots move across the screen when you press the S, T, R or B keys. The Snail speed moves only one space at a time and stops. Each time you want your brush to move again, you must press the space bar or the space bar and the REPT key at the same time. All of the rest of the speeds move automatically, the space bar being used only when you want to stop or start movement.

In your first experiments in brush making, the paddles and speed keys may seem to be out of control until you learn how to handle them. If the brush that appears is not to your liking (or stretches to the edges of the screen!), simply press the M key again and start over. You may also use the left and right arrow keys to help

shape the brush; the left arrow erases the dots, the right adds dots. These keys are especially helpful in Snail for precise control of your brush shape. Use the space bar as often as necessary to stop all movement. You may use as many different brushes on a painting as you like but you can only use one at a time. By pressing the H key, you will HOLD everything in its present screen location. It's like hitting the space bar.

Painting With a Brush

After you have finished making your brush, hit the P key to bring up the picture screen (the screen color will be the background you chose from the Beginners' Menu). Take a moment to read the directions at the bottom of the screen. You must put the brush down to paint and pick it up to stop. This is done with the U key. When the brush is up, it will continue to move across the screen but will not leave a paint trail. Hit the U key again and the brush will begin painting. To stop the brush at any time, hit the space bar or H key. You may steer the brush with either the keyboard or the paddles just as you did to make the brush. You may switch controls while you're painting by simply pressing the '/' key when you want to use the paddles or one of the keyboard directional keys when you do not. The colors are changed by pressing the keys one through six, each giving you a different color. One is green, two is purple, three is white, four is orange, five is blue and six is black.

Your painting speed is controlled by the 'S'nail, 'T'urtle, 'R'abbit and 'B'litz keys. When you are in the Snail mode, you can move the brush faster in the direction chosen by either pressing the space bar quickly or the space bar and the REPT key at the same time. Painter will make clicking sounds as it moves forward. If you want to change the background color, press ESC and select a new background (but remember you will lose the designs you've just made when you change colors!). If you press ESC accidentally, Painter will let you go back to where you left off with no loss of your picture by pressing the RETURN key.

NOTE: If at any time you appear to be stuck, you probably hit the space bar to stop what was going on, switched to a different mode (returning to the monitor screen to make a new brush, for example), and then forgot to hit the space bar again to continue with the new activity. Try hitting the space bar a few times. If that doesn't work, it may be that you are painting in the same color as the background and cannot see any of the paint trails on the screen. In this case, change the color the brush is using.

One really fine feature that does not appear at the bottom of the screen is the ability to see what a brush movement (stroke) will look like without permanently setting a color and pattern down. Hit the space bar to stop all brush movement. Now press the ':' key. Press the space bar again and continue painting. If you decide the effect doesn't please you and you would rather not keep it, press the '-' key. Everything that had been painted since the last time you pressed the ':' key will disappear. Do not press the '-' key at any time without setting a control of how much should be erased by pressing the ':' key beforehand. If you do (mistakenly striking the '-' key), the effect would be the same as if you had pressed the C key to clear the screen. All of your work would be lost! You may also try erasing a part of your picture by directing your brush over the section you no longer want and using the same color as the background.

Your attention should be brought to a characteristic of Apple DOS that affects the visuals in the painting modes of Painter Power. If you use a vertical line as a part of a brush, like this for example, and are on the picture screen, you will clearly see, as you move the brush horizontally across the screen and while the brush is up, that the vertical portion of the brush alternately disappears and appears again. The effect this has while you are painting is that if you put your brush down while the vertical part of the brush is not visable, that portion of the brush will not leave a paint trail. You may like the results.

However, if you prefer that this not happen, all you need to do is while you are making your brush, make the vertical part of it a double line instead of a single one. This way, when the brush moves horizontally across the screen, one of the lines will disappear but you have, in essence, a back-up line that is always visable to keep your brush intact. This effect does not happen when you move a brush vertically or are using black or white.

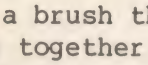
Controlling the Wraparound

You will notice that when the brush goes off the edge of the screen that it comes back at the opposite edge. The brush seems to be moving around the back of the screen, out of sight, and returning to the canvas at the other side. This is known as the 'wraparound' and is controlled by the W key. Hit the W key to turn it off and hit it again to turn it back on. When the wraparound is off and the brush has disappeared off the righthand edge, for example, painting all the way, when it reappears at the lefthand edge it will no longer be leaving a paint trail. To begin painting again, you must steer the brush back and off the lefthand edge (the opposite direction that it was moving in) and onto the screen from the righthand edge. You may also hit the W key when the brush first reappears at the left edge to continue painting. Keep the wraparound off if you are using a large brush (that is visible at both edges) while you are working at one edge. This way the paint is placed only where you want it instead of spreading it to both edges.

You may lose track of exactly where the brush is when it is out of sight. To locate it you may either press 0 (zero) and the brush will reappear on center screen or turn the wraparound on again which will force the brush onto the picture.

Fun Brush Patterns

Weaving a Carpet

Using your paddles, make a brush that looks something like this,  , being careful the dots are close together. Press the M key to register the brush pattern and then the P key to bring up the picture screen. Set your horizontal (or right/left) paddle in its center range so that when the brush begins to move, it doesn't go sideways at all. Set your vertical (up/down) paddle just enough to the right of center so the brush moves up slightly. As the brush moves upward, strike the color keys (one through six) and presto!--computer carpet.

Making a Mountain

Go back to the monitor screen to make a new brush by pressing the RETURN key. The first ingredient in mountain making is a bumpy brush that looks like a mountain range silhouette stretching from one edge of the screen to the other. To use the keyboard, alternate hitting the G or J keys and your Y key to go up at an angle or the G or J keys and the N key to go down at an angle. To use your paddles, set the right/left paddle so that the dots are moving one way or the other, a space or two at a time. Then use the up/down paddle to make bumps. When you are through, hit the M key again and then the P key to return to the picture screen. Unlike the carpet, there is no best way to move the paddle to paint a quality mountain. You must experiment with the paddle movements and color changes.

Remember, if you don't like what you see at first (and what great artist has ever been satisfied on the first attempt?!), hit the C key to clear the pattern on the screen or hit the ESC key to change the background color (your mountain-making brush will be left intact).

Disappearing Lines

Use a small, vertical line as a brush. Press the P key for paint and set the paddle so that a solid bar of color is being painted across the screen in a straight line from the left to right sides. Now start moving the up/down paddle while changing colors. When the bar comes back around over its previous trace, it will create a sort of weave. Be sure to hit the W key if the brush is not painting when it reappears at the other side. The more you change the colors, the more intricate the weave pattern becomes. The trick is to make the bar disappear at one point and reappear at the other side not too far below or above the previous exit point. The brush then goes over what was painted before, leaving portions of the color underneath showing through. You may use the U key (brush up or down) to control more precisely where you feel the brush should begin painting again once it reappears.

PAINTER POWER ADVANCED

This program is written to allow as much flexibility as possible. This means that once you know the program well, you can find new ways to use it. It also means that the novice can easily set up a situation where something is happening (or not happening) on the screen that he or she can't yet explain. The key to gaining a basic understanding of the advanced program is to start simple, try out one feature, learn it, turn it off, try another feature, and so on. Once you have gone through the features, you can begin to combine them.

When you first enter Graphics from the Set-up Menu, without changing any of the Set-up Menu's initial settings, all mode selections and settings will be pre-set to a certain set of conditions. The monitor screen will display brush no. one. The control display at the bottom of the monitor screen will show only three modes on -- Wraparound, KB-Hold (keyboard control) and Stop. (When any mode is on, the character that controls the mode will be displayed in an inverse visual -- black letter in a white box. To turn a mode off, just hit the character.) From this state you will be able to explore each of Painter Power's advanced features. To reinstate the initial set of conditions, simply turn everything off except Wraparound, Stop and KB-Hold.

The following sections describe each feature. Each section also describes what other features are related and how a group of features may be applied.

Painter Power Advanced is choice B from the Program Selection Menu. Press B. This will bring up the Set-up Menu. Painter Power Advanced uses the keyboard, two to four paddles or a joystick (you may need to acquire extra equipment for your computer to accept the use of four paddles), two hi-res screens (the monitor for brush making and picture for painting) and four text lines (the control display) at the bottom of each screen.

If you are familiar with Painter Power Beginners' version, you are ready to use Painter Power Advanced since all of the options in the Beginners' version are present in identical form in the Advanced version with two exceptions. The first is that the extended screen (controlled by the Wraparound Mode) used in the Advanced is much larger than the extended screen in the Beginners' (-512 points to +511 points in both directions opposed to -256 points to +255 points in both directions). This allows very large brushes to be used without wraparound problems. The second difference is that to reassign control to the paddles after it has been given to the keyboard, you must hit the Z and X keys instead of the '/' key. The keyboard automatically has control when you first boot the program. You paint and make brushes using the keyboard or paddles in exactly the same way.

Painter Power uses the monitor screen to display the currently selected brush (see the Quickstroke section for an explanation) against a black background. This screen is also used to compose new brushes and quickstrokes. The picture screen displays the picture you are currently painting and is always the color of your chosen background. In the course of painting a picture, you will be jumping back and forth between the two screens as you design new brushes and strokes to be used. To bring up the monitor screen from the Set-up Menu, press either the RETURN key or the A key (for Start or Resume Graphics). To move from the monitor screen to the picture screen, press the P key after making whatever changes you wished (creating a new

brush, for example). To move from the picture screen to the monitor screen, press either the RETURN key or the P key. Press the ESC key from either screen to return to the Set-up Menu. It should be understood that the options Painter Power presents does not depend upon which screen is displayed; the options are always the same.

The four text lines at the bottom of both screens (the control display) indicate various modes and settings which are in effect at any given time. The letter following the name of each mode is the keyboard character that must be hit to switch that mode off or on. The only exception to this is the painting mode, PMODE. This will be described later in the manual. The '?' key can be used to make the control display disappear and reappear. This is useful when doing animation for friends or collegues and the flashing numbers are distracting. Just hit the '?' key. This feature only functions when either the Set-up Menu, monitor or picture screens are displayed. When you press the '?' key and the Set-up Menu is up, **SELECTION: must be at the bottom of the screen.

Return to the Set-up Menu. At the bottom of the screen is a line **SELECTION:. When you press any number from the Set-up Menu options, one through seven, that particular option line will reappear at the bottom of the screen ready for any changes you wish to make. For example, you know from the Beginners' version that Painter is automatically set for a white background when the program is first booted. If you want to change that background, press 1 for Background Color. The line reappears in the same place where **SELECTION: was at the bottom of the screen. Press a number one through eight to change the background to the color you want (a fuller description of this option follows). To lock the change in the program, press RETURN. The line for Background Color at the top of the screen now shows the number you pressed at the righthand edge and ** SELECTION: reappears at the bottom of the screen ready for another change.

Let's say, though, that after pressing 1 for Background Color that you changed your mind; white is the background you want to use. It is another option that you wish to change. Since the RETURN key has not yet been pressed to lock a change, press either the right or left arrow key. Go forward and backward and the option lines will appear at the bottom of the screen in their numerical order. The arrow keys will move the menu this way only after one of the options lines is visable at the bottom of the screen. If you pressed the RETURN key to register a change in an option, you then must press the number of the next option you wish to work with to make any changes.

Bring up the monitor screen now by pressing either the A key or the RETURN key. Brush no. 1 is always displayed on the monitor screen when the program is initially booted. Press the RETURN key again. The last two text lines disappear and **SELECTION: appears at the bottom of the screen. Changes can be made on the monitor screen to the options from the Set-up Menu in exactly the same manner as just described above without having to press the ESC key to return to the Set-up Menu. The advantage of making changes from the monitor screen is that you can see what the changes are going to be with some of the options. An example is option two, Brush Pattern. You have a choice of eight different brushes. Press 2. The option line appears. Now press a number from two through eight. The patterns are displayed on the monitor screen so you can easily make a choice of the one you would like to use. When you have decided, press the RETURN key. **SELECTION: reappears.

Background Color Selection (Option 1)

You already know how to change your background color. Painter Advanced has eight color choices (as opposed to six in the Beginners' version). Press the key that corresponds to the background color you want from the table below:

1 - Green 2 - Purple 3 - White II

4 - Orange 5 - Blue 6 - Black I

7 - White I 8 - Black II

While pressing the keys with the monitor screen displayed, the colors will flash momentarily so you may better gauge what should be used for what you have in mind.

In Painter Power there are two choices for black and white (Black I and II; White I and II). A logical question is why. The Apple has two color "families." The two families are:

Family 1: Green, Purple, White I, Black I

Family 2: Orange, Blue, White II, Black II

In the first family, Black I and White I are actually made from green and purple. When you paint with black and white and use a brush that is scallop-shaped, for example (brush no. 1), the pattern left vertically will have green and black lines with Black I and a purple hue with White I. In the second family, black and white are composed of orange and blue. So when using the scallop-shaped brush, Black II will have orange and black vertical lines and White II will have a blueish cast.

The result from using these four colors can be distorted depending on brush shape and direction. This color distortion in black and white can be put to good use but it is a matter of taste.

Changing Background Color with CTRL B

Hitting a CTRL B clears the background color and changes it to the currently selected color you are using to paint with. The effect on whatever designs you have painted is the same as when you change the background by either returning to the monitor screen, the Set-up Menu or hitting the C key to clear the screen -- it's lost.

Brush Pattern Selection (Option 2)

The brush you choose to paint with may be one of your own creation or one of eight brushes that is part of Painter's standard set. (You may also make your own set of brushes but that will be covered later.) If you are already familiar with the standard set of brushes, you may set it up for use from the Set-up Menu by pressing 2 so the brush pattern option line appears at the bottom of the screen and then pressing the number of the brush.

To see the brushes, bring up the monitor screen by pressing either A for Graphics or the RETURN key. Press the RETURN key so that the **SELECTION: appears at the bottom of the screen and press 2 for the Brush Pattern option. Now you will be able to see the rest of the brushes in the set by pressing the numbers two through eight (remember brush no. one is always displayed when the program is first booted). When you find the brush you would like to try, press the RETURN key. **SELECTION: reappears. If there are no other options you wish to change, press the RETURN key again and the bottom two text lines reappear. The brush you've chosen remains on screen.

In the top text line of the control display is an indicator, BRSIZ, followed by numbers. This is the brush size indicator and tells you how many points make up the brush that is displayed. As you were pressing the numbers one through eight looking at the different brushes, the numbers adjacent to BRSIZ changed with each one. Brush eight is composed of 253 points, brush three is composed of 100 points, and so on. When you make your own brush, this indicator will tell you how many points you are using.

Making Your Own Brush - M Key

No artist should be told how to do something and what materials to use. Therefore, if you decide that the brushes of Painter's standard set are inadequate for what you envision for your painting, by all means, make your own brush! The method is the same as in the Beginners' version. Be sure the control display is visable at the bottom of the monitor screen. Now press M. As was mentioned before, when a mode is in use, the character that controls that mode will appear in an inverse visual. Whatever brush from the standard set that was on the monitor screen disappears.

Press M when you are through making the brush. This brush will replace the one that initially appears in the standard set until you reboot the program. Instructions for saving the brush pattern (your first in your own set of brushes) come later in the manual.

Keyboard/Paddle Control - Z and X Keys;
Right and Left Arrow Keys

Now you must choose how you are going to make your brush -- with the paddles or keyboard. The control display indicator that shows you what is directing movement is KB-HOLD Z/X. When the Z and X keys are displayed in an inverse visual, the keyboard has control. Press the Z and X keys (turning the mode off) and the paddles have control. Make your choice and make a brush. When the shape is to your liking, press the M key turning the mode off. If, on the other hand, you messed up your first attempt (you left Blitz speed on and your brush bolted off before you knew what was happening), you may do one of two things: you may press the space bar to halt all movement (the control display indicator, STOP, will have a white box next to it) and edit your brush by adding or subtracting dots using the right and left arrow keys, or you may press the M key twice -- the first time turns the mode off, the second time turns it back on and clears the screen so another brush can be made.

Locate Mode - L Key

There are two other control display indicators that can be used in brush making, LOCATE L and REVERSE ,/. . Locate allows you to make a segmented pattern. Begin making a brush and then press the L key. The last point of your brush will split away from the pattern traveling across the screen at the command of either the keyboard or paddles. Press the L key again to turn it off and a pattern will start forming at whatever distance from the original pattern you placed it and in whatever direction it last recognized. Switching control from the keyboard to the paddles while Locate is on is controlled by pressing the '/' key (instead of turning the Z and X keys on and off). When you want to use the paddles, press the '/' key; when you want to use the keyboard, press one of the keyboard directional keys (G, J, Y, N). Return control to the paddles by pressing the '/' key again.

Reverse Mode - ',' and '.' Keys

Reversing a direction is controlled by the ',' key and '.' keys and used only with keyboard control. The ',' key controls horizontal movement and the '.' key controls vertical. Set the direction of your brush to the left by pressing the G key. Press the ',' key. The dots will stop moving left and reverse direction to the right. At first you won't be able to see where the dot is but if you look at your BRSIZ indicator, the numbers will be changing indicating that the dots are, indeed, moving. Sooner or later, depending on how long you made your horizontal line, the dots will start adding points to the right. Reverse direction again by pressing the ',' key again. Use the same procedure with the '.' key to reverse vertical movement. The ',' and '.' keys will not be shown in an inverse visual when you use them.

NOTE: The maximum size of any brush that can be made is 255 points. This number reflects the total number of points that can be placed horizontally across the screen. If you go beyond 255 points, Painter automatically returns to zero and your brush disappears.

Saving a Brush Pattern

By this time you have put in a lot of work using all of the control display modes that affect the shape of a brush. If you are still a novice at using Painter Power Advanced (which, at this point, is rapidly changing), you may not yet be sure how you made the brush that is on the screen (and what a peculiar beauty it is!). No effort like that should be wasted so lets save it to one of your initialized disks.

Switch off the Make mode by pressing the M key. Now press the ESC key to return to the Set-up Menu. Toward the bottom of the menu, option C reads "Store or Retrieve a Picture or Brush." Press C. The screen will change to the Disk Menu where you are able to load and save pictures, brush patterns and brush pattern sets, peek at a picture, catalog a disk or delete a disk file. You can think of this menu as the administrative part of the Advanced version as opposed to the creative.

Press 4 for Save a Pattern. Below the word SELECTION a line appears asking for a pattern number (1-9). Since this is your first brush pattern, it will be pattern number one. Press 1. Another line then appears asking for a pattern name. Give it a

name. Before you press the RETURN key, be sure to remove the Program disk and put your initialized disk into the drive. Then press the RETURN key. Once the pattern has been saved to the disk, a line at the bottom reads, "I did Selection 4 with (pattern title, Pat.)" and a direction to press RETURN to continue. The Disk Menu is ready for your next command.

You gave your pattern a number because this was the first pattern saved that will eventually become a pattern set of your own making. There are eight patterns in one set. The ninth will be the pattern you choose as your quickstroke for that set. Quickstroke will be discussed later in its own section.

If this is enough information for one sitting and you need a break, press D to return to the Program Menu. If you want to return to the Set-up Menu, press Z and let's paint!

Painting a Picture

Bring up the monitor screen and press return so **SELECTION: appears at the bottom. Press 1 for background and choose your color. Next choose your brush -- your own or one of the brushes from the standard set. Now you may choose to either have the colors you paint with controlled by the keyboard or one of the paddles.

Color Selection (Option 6)

This option allows you to to switch your color control back and forth from the keyboard to one of your paddles as the source of your paint. When Painter is booted, control is automatically set to the keyboard. To change this, press 6 for COLOR SELECTION: KB/PDL (1-4). KB and PDL obviously stand for keyboard and paddles. At the righthand end of the line, a K is shown letting you know that the keyboard is set for color control. Press keys one through eight to change colors.

To give control to the paddles, press the number of the paddle you would like to control the color. Since Painter can handle up to four paddles, this option allows control to be set to any one of them. When control is set to a paddle, then the paddle setting will determine the color used. How to set specific colors to specific paddles settings will be described in the next section. The control display indicator, COLOR, will always reflect what color is currently being used whether the control is set to the keyboard or one of the paddles.

The colors used with this option are the same, with the same, corresponding numbers, as are listed in Background Color Selection (option one).

Color Table (Option 7)

The paddles have a range of 255 points (corresponding to the horizontal length of the screen). Painter divides this range into eight sections to accomodate the eight colors of its palette. When the Set-up Menu is first brought up, the paddle section numbers that are linked to the color numbers are the same. That is, paddle section one will paint color no. one which is green; paddle section to will paint color no. 2 which is purple, etc.
To change this automatic paddle/color setting, press 7 for Color Selection. The Color Selection option line is displayed at the bottom of the screen with the

cursor blinking on the second numeral one. The second number is the paddle section setting; the first is the number of the color. To illustrate how this option works, let's say that the colors you want to use are purple (2), blue (5) and Black I (6). Press 2. Paddle section no. 1 is now set to paint purple. Press the right arrow key to move the cursor to paddle section no. 2; press 2 again and paddle section no. 2 is set to also paint purple. Press the right arrow key to move to paddle section no. 3. Now press 5. Press the right arrow key to paddle section no. 4 and press 5 again. Do the same to paddle section no. 6. Paddle section nos. 7 and 8 will be Black I so press 6 for these two sections. Your paddles will now be set so that section one and two paint purple, sections three through six paint blue and sections seven and eight paint Black I after you press the RETURN key.

You may change your mind and alter your settings before pressing the RETURN key by going back to any of the paddle sections by pressing the left arrow key. If you think there is too much blue and orange would be a nice color to contrast the blue and purple, hit the left arrow key until you come to the paddle section that you would like to be orange and press 4. Press RETURN now and all is ready.

Before painting, be sure that option 6, Color Selection, has a number at the right side to indicate the color control is set to one of your paddles. If a K is there, the keyboard is set for this control. To switch the color control back and forth while you are painting, you will have to exit the picture screen to the monitor screen, switch control through option 6 and then return to the picture screen.

NOTE: There is a slight limitation when using the paddles to control color when using Blitz speed. The limitation is that the color may only be changed once for every four points drawn no matter how rapidly you adjust the setting on your paddle.

Painting - P Key; Brush Up/Down - U Key

To bring up the picture screen from the monitor screen, press P for paint. The first step is to put your brush down by hitting the U key. The indicators on the control display should now show the P and U keys in an inverse visual indicating that these modes are now in operation.

The P key is used to switch back and forth between the picture and monitor screens. Whenever you come back into graphics from the Set-up Menu, the brush is automatically lifted to prevent accidental painting. Painting, also, does not occur when the wraparound is off and the brush is on the extended screen (more about that later). Put your brush down, press the space bar and begin to paint using all of the options and modes you now know how to use.

Locate Mode - L and '/' Keys

Locate functions in the same manner as it did in brush making. Now have fun with it. Locate is used to locate the next position the painting is to resume. This is very useful for selective painting when you wish to dab a little color here and a little bit there. Press L when you want your brush to lift from its present location and press it again at the spot where you want the brush to paint again. Switch to paddle control by pressing the '/' key and back again to the keyboard by hitting one of the directional keys (G, J, Y, N).

Reverse Mode/ZigZag Design

As you already know, the Reverse keys (',' and '.') only work when you have your brush movement set to keyboard control. The Z and X keys should be in an inverse visual. Switching from paddle to keyboard control, used in conjunction with the reverse keys, you can achieve a zigzag pattern that can be used as a brush or set up another brush to paint a zigzag design. (Use Reverse whenever you like. This is just a suggestion for a design that can be made using this mode.)

For experimentation sake, put your brush up and set brush movement control to the paddles (Z and X keys are off). Now start moving the brush in a zigzag either horizontally for vertically. Once you have a feeling for the movement, quickly switch control to the keyboard by pressing the Z and X keys. If you pressed the keys rapidly enough, the brush should be moving at an angle across the screen. If the angle is set horizontally, press the ',' key; if it is vertically set, press the '.' key to reverse directions. Keep hitting one of these keys at regular intervals. When you are ready, put your brush down and watch the zigzag design take shape. You can do this same sort of design with the paddles, but using this technique, and being careful what speed you use, should offer you more precision and control.

Painting Modes - '!','"','#','$' and '%' Keys (PMODE)

The keys listed in the above heading are controlled by the control display indicator PMODE. These five painting modes affect the way the brush paints over colors already on the picture. The following describes each mode.

'!' This is the normal painting mode and the mode that is automatically set when Painter is booted. The absence of this symbol after PMODE lets you know that if you want the paint colors to have their normal affect. Press '!'.

'"' In this mode, no change is made to the screen. All colors and details are left intact. The purpose of this mode is to allow you to switch back and forth rapidly between the different painting modes (or make a decision of what to do next) without affecting anything you've done so far. Essentially it's like lifting your brush up.

'#' In this mode, black portions of the picture are changed to the currently selected color. White remains unchanged. Color portions are changed according to the following table:

Current Color	Existing	Resulting
Green/Orange	Green	Green
Purple/Blue	Purple	Purple
Green/Orange	Orange	Orange
Purple/Blue	Blue	Blue
Green/Orange	Purple/Blue	White
Purple/Blue	Green/Orange	White

'$' In this mode, whites are changed to the currently selected color; blacks remain unchanged. The existing colors are changed according to the following table:

Current Color	Existing	Resulting
Green/Orange	Green	Green
Purple/Blue	Purple	Purple
Green/Orange	Orange	Orange
Purple/Blue	Blue	Blue
Green/Orange	Purple/Blue	Black
Purple/Blue	Green/Orange	Black

'%' This is the Complement mode. The current setting of the color does not apply. This mode is particularly fascinating since the picture will constantly change according the the following table:

Existing Color	Resulting Color
Black	White
White	Black
Green	Purple
Purple	Green
Orange	Blue
Blue	Orange

Keyboard/Paddle Direction and Level Indicator - (000 000)

In the top text line of the control display are two indicators with numbers enclosed in parenthesis. The first tells you the direction the brush is moving and the level of the angle. The numbers on the left side are for horizontal movement. When a negative sign is displayed, the direction is to the left; when a positive sign is displayed, the direction is to the right. The numbers on the right are for vertical movement. When the negative sign is displayed, the direction is down; when a positive number is displayed, the direction is up.

When keyboard control is in effect and you are moving up, the indicator for horizontal movement will show only zeroes and a plus or negative sign depending on which direction the last horizontal command gave (left-negative sign; right-positive sign). It will show +000 or -000. The vertical indicator that is presently in operation will display +001 to show that the brush is moving up at this time. It will display -001 if you change the direction to move down.

When control is passed to the paddles, the directional display means the same things with one difference. How far you turn your paddle knobs from the center range is shown. For example, hit the space bar to resume brush movement in a direction, left for instance. The horizontal numbers will display -000 through -004 depending on how far to the left you turn your horizontal paddle. When you set it at -000, the brush will stop.

This indicator is especially useful when you lose track of your brush on the extended screen and for controlling more precisely a straight horizontal and vertical movement when you are using your paddles.

If you are creating a brush or a quickstroke, it will indicate where the next point will be in relation to the last one.

Brush Location - (000 000)

This second setting in parenthesis shows the current screen location of the STARTING point of the brush. The numbers on the left represent the horizontal plane; - left and + right. The numbers on the right represent the vertical plane - down and + up. The picture screen has a horizontal dimension of 0-255 and a vertical dimension of 0-127. You have probably noticed, while experimenting with the various modes, that these numbers never stop changing while the brush is moving; they always reflect current location.

When the wraparound is off, and the brush moves off the screen and out of sight, it is on the larger, extended screen. The extended screen's dimesions are -512 to +511 horizontally and vertically. When the brush location is off the screen and moving either horizontally or vertically, its point location on the extended screen is shown in an inverse visual as soon as the last point of the brush is no longer visable.

Wraparound Mode - W Key

When you first enter Painter Power Advanced, the wraparound is off. The effect on the brush is that when it leaves the screen in one direction and returns on the opposite side, it will not leave a paint trail. This means that the brush has moved onto the extended screen (see the section above). To get the brush back onto the picture screen, it must either traverse the entire extended screen (whose dimensions are -512 to +511 horizontally and vertically) or it must be lead back onto the screen by being directed in the opposite direction from the point where it left. Sometimes you lose track of where the brush is. The Direction and Location indicators should give you a fairly good idea. You may force the brush back at any time by either turning wraparound on by pressing the W key or pressing 0 (zero).

Keyboard Control - KB-Hold/Z and X Keys

The Z and X keys do more than just maintain control of movement to the keyboard. The Z key controls the horizontal plane (left/right movement is governed by the G and J keys) and the X key controls vertical plane (Y and N keys direct movement up and down). To show you what happens when either the Z or X key is off, clear your screen. Press the J key. Your brush will be moving to the right in a straight line. Now press the X key. The brush will continue to move to the right but no longer in a straight line. It is drifting upward and to the right. You released the vertical hold on movement that kept the brush moving in a straight, horizontal line. This movement is stopped the moment you press one of the directional keys. Direct your brush down, now, by pressing the N key. Press the Z key. The brush will move down and to the right. The horizontal hold has been released. By turning the Hold Horizontal and Hold Vertical keys off, portions of the current stroke can be suppressed. This is especially interesting when the current stroke is one of the curved patterns computed using the Math Menu. (See the discussion on Strokes.)

Keyboard Control - CTRL Y, N, G, J

To see this effect, make a short, horizontal brush. Direct your brush to move down. Then press the CTRL and J keys simultaneously once. The brush will leave a paint trail at an angle towards the right. Press CTRL J a second time and the angle becomes even steeper. Notice that the horizontal direction/level indicator on the control display reads +002 (the 000 000 at the left side). Press CTRL J again and it moves closer to a horizontal level. The indicator will keep count of how many times the CTRL J has been pressed. The more the CTRL key is pressed with one of the keyboard directional keys, the more acute the angle becomes. When using the CTRL J and G when the Hold Horizontal is on (the Z key is display in inverse) and when using the CTRL N and Y when the Hold Vertical is on (the X key is displayed in an inverse), you may add and subtract from the depth the angle of your brush is moving. Let's say you initially set the direction of your brush to move left and then pressed a CTRL Y three or four times. The vertical direction/level indicator on the control display would read +004. Press CTRL N the same number of times that you pressed CTRL Y and it will reverse the numbers and the movement of your brush until it is, again, moving horizontally across the screen. The vertical direction/level indicator will subtract one level of the angle of movement each time you hit the CTRL N.

If you press one of the CTRL keys in conjuction with the REPT (Repeat) key, the brush will be repeated very rapidly all over the screen giving a dazzling effect.

Using the CTRL key in conjunction with the G, J, N and Y keys while you are making a brush increase the separation between points.

Brush Size (Option 4)

This option allows you to alter the size of any of the brushes in Painter's standard set (or your own) through the keyboard's right and left arrow keys or by use of one of the paddles. From the monitor screen, choose one of the brushes you would like to change through option 2 (Brush Pattern). Press the RETURN. Now bring up option 4 for Brush Size. When Painter is booted, brush size is automatically set to the keyboard. This is the "normal" setting. An N is displayed at the righthand edge of the Brush Size option line. Press RETURN so the entire control display is visable and begin pressing the left arrow key. One of the brushes points will disappear each time you hit this key. The BRSIZ indicator will reflect how many points are left in the brush. Points may be added to the brush, retracing its original pattern, by pressing the right arrow key. With the arrow keys you may shrink a brush to one point or enlarge it to the same number of points that composed the brush. Painter will beep and stop enlarging the brush when the original number of points has been reached. For rapid forward and backward movement, press either arrow key simultaneously with the REPT key.

Pass the brush size control to one of your paddles by pressing the number of the paddle you wish to have it. Press the RETURN key. The paddle will control the brush size with either the control display or **SELECTION: visable. With paddle control, you can reduce the brush to one point or expand it to the 255 points Painter allows for its biggest brush. The paddles will override the original number of points that composed the brush. The pattern that is usually left when the original number of points is extended by the paddle is a straight line that angles down and to the left.

The paddle control of the brush size can be used as an interesting painting technique. Bring up the picture screen and put your brush down. Begin painting and then turn the paddle knob down so the brush has only one point and then explode the brush size suddenly to a full 255 points changing colors.

Quickstroke

The last two options (Stroke Pattern and Stroke Size), the text line setting SSIZ and the last two modes (Visualize and Quickmode) to be described are all interrelated. Before delving into the details of each, we will discuss the meaning of a quickstroke.

You may recall, in the section of the manual that described how to save a brush pattern, that one of the prompts that appeared asked that the pattern to be saved be given a number (1-9). Painter allows you to make eight brush patterns to a set. The ninth is the quickstroke. You choose one of the brush patterns from your set as the quickstroke for that set. Painter's quickstroke for its standard set is brush no. 5, PAINTER POWER.

When you direct the brush you are using as your painting tool to execute a quickstroke, what happens is that the brush will trace the quickstroke's brush pattern, either in part or in full, depending on how you decided to shape the quickstroke.

Executing a Quickstroke - ';' and '+' Keys

The clearest way to see Painter's quickstroke is the load brush no. 2 as your painting tool. We will jump a little ahead of ourselves for the sake of this example and bring up option no. 3, Stroke Pattern, and load brush no. 5. (Don't wonder why. All will become clear later on after you read option three's section.) Press RETURN and bring up the picture screen.

There are two different forms of quickstroke that can be evoked. Press the ';' key. As you see, brush no. 2 did a complete tracing of the words PAINTER POWER. This form of quickstroke will continue whatever painting activity that was in effect when you pressed the ';' key at the last point of the pattern. The '+' variety of quickstroke, however (go ahead and press the '+' key), will continue painting from the first point of the quickstroke. To illustrate this, clear your screen and execute the '+' variety followed by the ';' variety. You have just executed two quickstrokes but only one tracing of the pattern appears. Now execute a second quickstroke pressing the ';' key. A second tracing of the quickstroke is visable beginning from the last point of the tracing left by the first two.

On the picture screen, the brush you are using will paint the quickstroke when you press either of the quickstroke keys whether your brush is up or down or whether Stop is on or off (provided the brush is not on the extended screen). If you execute a quickstroke on the monitor screen while making a brush, the quickstroke will become a part of that brush's pattern.

Stroke Pattern (Option 3)

You may load any brush pattern with option three and use it as the direction the brush you have chosen to paint with to follow. Bring up the monitor screen and select the brush pattern that to you would be the most interesting. You must look at the brushes through use of option two, Brush Patterns, since only the brush you plan to use as your painting tool will be displayed when you are ready to load the Stroke Pattern. Control of the stroke can be given to brush patterns one through eight or to one of your paddles. In this example, control will be given to a brush pattern. Press the number of the pattern you like and press the RETURN key. If you have not already loaded a brush to use to paint with, do so now and bring up the picture screen by pressing the P key. To set your brush on your predetermined stroke path, put your brush down, turn off the Z and X keys and press the space bar. The brush will trace the stroke pattern over and over across the screen until you either press the space bar again or press one of the keyboard directional keys (J, G, N, Y) which automatically transfers the control of movement back to the keyboard.

Stroke Pattern and Quickstroke

A brush may execute the entire pattern of the quickstroke or only part of it. This is determined by options three and five. The normal setting for option three is to the paddles. A P will be displayed at the end of the Stroke Size option line. the control display indicator, SSIZ, will read 32. This means that if you execute a quickstroke with option three set to the paddles, only the first 32 points will be traced. (This automatic, 32-point paddle setting can be overridden through option five, Stroke Size.)

Now let's pass the Stroke Pattern control to one of the brushes. Press numbers one through eight. Note that SSIZ changes with each number pressed and BRSIZ remains the same. The brush size of whatever brush that was loaded last with option 2 (Brush Pattern) is reflected in BRSIZ (it should be displayed on the screen). SSIZ will reflect the number of points that compose each of the different brushes in the set as you press their corresponding keys. (If you have brush no. one displayed on the screen and have brush no. 1 loaded with Stroke Pattern, BRSIZ and SSIZ will both read 200.) SSIZ tells you that the number of points shown in this setting will be the number of points that will be traced when the quickstroke is executed.

To illustrate, let brush no. one be the stroke pattern with 200 points and load brush no. 2 as your painting tool (BRSIZ reads 009). Bring up the picture screen and press the ';' key. The quickstroke that is traced stops at the 200th point. Try this with another brush, the blimp (brush no. 4 and an ellipse), for example. Executing a quickstroke with brush no. 2 leaves a readable trace of the words PAINTER POWER. Using the blimp brush, you may have the impression it's not the same quickstroke. As you can see, the quickstroke may have an infinite variety of effects depending on the brush and the length of stroke.

Stroke Size (Option 5)

The quickstroke need not be restricted by the size of a brush pattern. Option 5 allows you to override these restrictions by passing the control to one of the paddles. When the Stroke Size is set to normal (an N is displayed at the end of the option line), the length of the quickstroke executed will be exactly the same number of points that compose the brush loaded into option three. If option three is set to paddles, the quickstroke will trace the first 32 points of the pattern.

Give control to one of the paddles by pressing the number of the paddle you want to have it. Bring up the picture screen and set the paddle to the size of the stroke size you would like the quickstroke to execute. Change it while the quickstroke is in progress by turning the knob.

Visualize Mode - V Key

Visualize is used so you may see the direction that your brush will take when a quickstroke is executed. The quickstroke pattern that you have set up through Stroke Pattern and Stroke Size will be superimposed on your painting when you press the V key. Use Locate with the paddles or the keyboard to position the quickstroke at the most effective position (be sure Stop is off). Think of Visualize as an artist imagining what the effect a brushstroke would have on a certain part of his canvas.

Quickmode - Q Key

The quickstroke pattern can be altered when both the Quickmode and Visualize modes are on. Press the V and Q keys and then the space bar. The quickstroke pattern will immediately begin to unravel itself. To direct the shape of this change with the keyboard, use the G, J, Y and N keys. If you have control set to the paddles (the Z and X keys are off) and option five is set to normal, the pattern that will arise will be the the brush pattern set in option three. If control in option five is set

to one of the paddles and the Z and X keys are off, the pattern that arises may very well be indescribable and no doubt have a fascinating effect as a quickstroke. However you choose to alter the quickstroke's shape, it will remain the quickstroke for that brush set until you reboot the program. Turn off Quickmode and the new quickstroke is locked.

Stroke Pattern (Option 3) and CTRL Q

You may change your current quickstroke to any of the brush patterns in a set by loading the brush you would like as the new quickstroke as the stroke pattern and then hitting CTRL Q. That brush pattern immediately becomes the new quickstroke. You will not be able to modify the quickstroke using this technique, however.

Brush and Quickstroke Editing - Right and Left Arrow Keys

While creating a brush or quickstroke, you may go back in a pattern one point by hitting the left arrow key and forward one point by hitting the right arrow key. You may use these keys to alter a quickstroke when the Visualize mode is on and the Quickmode is off. If the Quickmode is on, it will cancel out any editing effect done with the arrow keys.

When painting with a brush, the arrows can be used to reduce and expand the number of points in the brush.

Setting and Relocating a Brush to a Screen Location - 9 and 0 (Zero) Keys

Whenever you hit the 9 key, Painter makes a boop sound and remembers the screen location of the brush at the moment the 9 key was hit. Subsequently hitting the 0 (zero) key returns the brush to the screen location set with the 9 key, regardless of what mode you are in or if Stop is on.

This feature has a number of uses. For instance, if you wished to execute a series of different brushstrokes radiating out from a single, screen location, you set that center location by hitting 9. For each brushstroke, you set the desired direction (through either the paddles or the keyboard) and turn Stop off (by hitting the space bar) until the stroke is completed. You then turn Stop on to halt the brush and the 0 (zero) key to return the brush to the starting location set by the 9 key and set up the next stroke direction the brush is to take, and so on. The 0 (zero) key is also used to force the brush back onto the normal screen when the brush is lost somewhere on the extended screen when Wraparound is off.

NOTE: Use of the '+' type of quickstroke alters the screen location saved with the 9 key.

Setting a Return Point While Creating a Brush Pattern - I and O Keys

While creating a brush, you may set a point in the pattern the program is to remember in order to return to that point later to resume the creation of the brush at that point. An example of this would be creating a brush in the shape of the letter H where it would be helpful to relocate in mid-line of the upward stroke to draw a crossbar. Press the I key at the point you would like to return to. Painter makes a blurp sound. When you want to return to that point, press the O (letter)

key. The brush will return to the point specified by the I key and continue.

Temporary Back-up and Restoration of a Picture - ':' and '-' Keys

See the PAINTING WITH A BRUSH section in the Beginners' part of the manual for a description.

CTRL E

CTRL E tells Painter not to do the following (which it normally does) when you return to the Set-up Menu: turn Stop on, turn Visualize and Paint off, lift the brush up. Thus, Painter will continue to do whatever you had set it to do when you return to Graphics from the Set-up Menu.

Creating Patterns Using Math Functions - Math Menu (Choice B)

The Math Menu allows you to use the computer to create curved patterns based on mathematical functions that would be impossible to create using the keyboard or paddles. These patterns can then be saved as part of your own set of brushes for use as strokes or brushes.

The procedure for computing a pattern is to select the type of curve you would like. Your choices are a circle, flower petals, a spiral, an ellipse (an oval) and a deformed ellipse (an oval with indentations), a sine or a cosine (waves). After entering the parameters of the pattern by answering the prompts that appear, Painter will process the information, switch to a blank monitor screen and the pattern will then begin to take the shape you specified. If you don't like the results, you can return to the Math Menu and try a different curve and/or a different set of parameters for the same curve. If you like the curve, Painter gives you the option of saving it as a brush for your brush set. It will automatically place (poke) the pattern into the place of the number of the brush you designate one point at a time. Simply answer the prompt that appears after the pattern has been formed and it will be available for use when you return to the Set-up Menu or Graphics.

If you select a curve and then change your mind, type ERR in response to any of the parameter prompts regarding the curve and you will be returned the the point of selecting the curve you want to compute.

The following describes the parameters that the Math Menu requests for each of the six types of curves.

Beginning and Ending Angles

Since you are computing curves, do not be confused with the term angles. Let's say you want to plot a circle. Your beginning angle would be 0 and your ending angle would be 360. Type 0,360. With these angles set, a circle would be formed. If you computed 0,180 instead, a half-circle would be generated.

Each multiple of 360 is one cycle of any of the curves available on the Math Menu. That is, if you select 0 thru 720, two cycles of the curve would be plotted (360 x

2 = 720). However, there is no purpose in specifying more than one cycle for a circle, flower petals or an ellipse since the additional cycles would not benefit the pattern because the curves are closed. In the case of sines, and cosines, if you plot three repeats of the pattern, for example, with the angles, 0,720, what will appear is a wavey line composed of six humps. One cycle would give you a wavey line with three humps as you specified in the number of repeats. The second cycle merely repeats the first.

Number of Repeats

The number of repeats is the number of times you want the program to repeat the pattern specified by the beginning and ending angles. For instance, if you selected to plot a circle with the angles 0,180 with six repeats, then the pattern that would be generated would be six semi-circles from end to end. Each repeat begins where the last one left off. The scallop-shaped brush (brush no. one) of Painter's standard set is an example.

Number of Points per Repeat

This number dictates how spread out the points in a pattern will be. The more points there are, the closer together the spacing will be. The maximum number of points per pattern is 254, so the number of points per repeat (one part of the whole pattern) must be less than or equal to 254 divided by the number of repeats. Typically, you should use about 150 points for an entire pattern.

Plot Vertically or Horizontally

A vertically plotted ellipse is a football on end. A vertically plotted sine or cosine looks like a snake going from the bottom of the screen toward the top. A vertically plotted circle and spiral start from the top going downward and then back toward the top. A vertically plotted flower has the point of the bottom-most petal pointed toward the bottom of the screen. As you can surmise from the above, horizontal plotting is just the opposite.

Scale

The scale is the maximum number of points across the screen that the pattern will span. The larger the scale, the greater the spacing between the individual points of the curve. Painter's screen is 128 points vertically and 256 points horizontally. Therefore, a pattern set to a scale of 64 points will have the feel of occupying about one-fourth of the screen. You can specify that your pattern span a scale greater than the screen size (511 points for example). This can be used for some interesting effects.

Angle

After all of the parameters of the math pattern have been set and before the actual pattern appears on the monitor screen, rapidly changing numbers appear after the word ANGLE at the bottom of the screen. This let's you know that Painter is in the process of computing the parameters of the curve you specified. These numbers will whirl from 0 through whatever the number of the ending angle is. It repeats the process for the number of times set for the repeat of the pattern. Upon completion

of the computation, the monitor screen is then brought up and the pattern begins to take shape on the screen.

Pattern Number (1-8)

If you specify pattern 0 (zero), the curve will not be placed (poked) into the brush pattern set. Otherwise the Math Menu will poke your curve into the place of the brush pattern number you specify and will be there when you return to the Set-up Menu or Graphics mode.

If you use a curve pattern as a quickstroke, when you return to the Set-up Menu, you must set the stroke sizing (option 5) to one of the paddles so that the size of the quickstroke can be adjusted to the number of points that compose the math pattern. When a math pattern is used as a stroke, you have the addional option of specifying a location offset of where the stroke is to be repeated. You answer Y (yes). The next prompt that appears is HORIZONTAL AND VERTICAL OFFSETS:. If you type 10,10, this means that the stroke will be repeated ten points to the right and ten points up from the last point drawn when the Z and X keys are off. You may also type 0,0 for no location displacement. If a pattern is to be used only as a brush, no offset should be used. Press N.

The procedure for setting up a math pattern as a quickstroke is to load the math pattern as the stroke pattern (option three). Next hit CNTRL Q. The current stroke loaded from option three is then automatically made the quickstroke.

Circle (Option 1)

When computing a circle, there are no special parameters that need to be entered. Various effects can be obtained by adjusting the ending angle to less than 360 and selecting more than one repeat. For example, to create a pattern that looks like a coil or a spring, type in 0,270 as your beginning and ending angles and then set the number of repeats for the number of coils you want. How to form semi-circles has already been discussed in the Begninng/Ending angles section. Like the coil, remember to plot the number of repeats.

Flower Petals (Option 2)

Choose the number of petals you would like. Since the flower pattern is essentially in a circle (beginning/ending angles are 0,360), more than one repeat is not necessary. Then select the rest of the parameters as you choose.

Spiral (Option 3)

For the spiral, the selection of the regular parameters greatly affects the type of spiral you will get. For many rotations, you should select a large range of angles such as 0,1000. For a single rotation, select 0,360.

For a densely packed spiral, with the appearance of circles spiralling inward, select a small to medium scale (10-90) with a large number of points.

For a spiral to look like a pinwheel, select a large number of revolutions (beginning angle 0, ending angle 10000 to 20000) with about 20 points per

revolution. To figure out the number of points per repeat of the spiral, use the following formula:

Number of Points = 20 times the ending angle minus the beginning angle divided by 360.

Since the spirals are basically circles, the number of times the pattern is to be repeated is only once.

Ellipse/Deformed Ellipse (Option 4)

An ellipse is an oval, either resting on its side or on its end. A deformed ellipse is a circle with a certain number of indentations or lobes. By adjusting the fatness factor (this determines how deeply the lobes will indent towards the center of the oval) and the number of lobes, a great variety of patterns can be achieved from a simple oval to a starfish, a starburst, cookie-cutter shapes.

Since an ellipse is like a lopsided circle, the beginning/ending angles are 0,360 and the pattern repeat is only once. It is better to select a high number of points per repeat so that there is a higher density to the pattern.

The fattest interior space is 99; the thinnest is one. If you select more than one lobe, the fatness factor will affect the fatness of each lobe.

The shape the lobes take is dependent on the fatness factor. If you choose a low fatness factor, you will get points or spikes radiating from a small center. If you choose a hefty fatness factor, you will get a bumpy-looking ellipse.

Sine (Option 5)

The amplitude is the height of the bumps on the sine wave. For a spiky appearance, select amplitudes of five to ten. For a smooth, rolling affect, select amplitudes of one to four. As with any of the curves, you may plot the pattern to begin and end from different portions of the curve -- 20,80 as opposed to 0,360. By speciying more than one repeat, you will get this portion of the curve repeated by the number of times you chose.

Cosine (Option 6)

The amplitude is identical to the sine. The only difference between cosine and sine is how the curve starts. The cosine starts down and comes back up while the sine starts in middle, goes up, then down past the starting point and back up to the middle.

Store or Retrieve a Picture or Brush - Disk Menu (Choice C)

Press C. This brings up the Disk Menu that was mentioned earlier in the manual. You are already familiar with some of the options from the Beginners' version. Refer to the appropriate sections in that part of the manual for information. The numerical selections on this menu operate in the same manner. The Disk Menu, however, gives you the ability to save and load (retrieve) patterns and pattern sets. You should pay close attention to the disks that contain or are to contain pictures, brush

patterns or pattern sets to insure the right disk is in drive. You cannot save or load anything from the Program disk.

Save a Pattern Set (Option 5)

Make eight brushes either through the Make mode or through the Math funcations. After the spaces for brush patterns are filled, return to the Set-up Menu and bring up the Disk Menu. Press 5. A prompt will appear asking for a pattern set name. Type one in. Before pressing the RETURN key, place the disk you want the pattern to be saved to into drive one.

You may also rearrange existing sets by loading brush patterns that are on file and placing them into one of the brush pattern spaces by specifying the pattern number the brush is to be loaded into and later saving the entire set.

Load a Pattern (Option 1)

After bringing up the Disk Menu, switch from the Program disk to the disk that holds the pattern you would like to load. If you have forgotten the name of the pattern, use option eight, Disk Catalog, to refresh you memory. After pressing 1, the program will ask for a pattern number. This will place the pattern in the order of the pattern set of the number you choose. For example, if you answer 2, the pattern will become brush no. 2 of the set. The next prompt asks for the pattern name; type it in. The picture will be ready to use once you replace the Program disk into the drive and return to the Set-up Menu.

Load a Pattern Set (Option 2)

Press 2. A prompt will appear asking for the pattern set name. Place the disk that holds this set into drive one and type in the name. Then press RETURN. To return to the Set-up Menu, replace the Program disk into drive one and press RETURN. The pattern set is now loaded and ready to be used.

Return to Program Selection - Choice D

This returns you to the primary Program Selection Menu. Press D and RETURN. A prompt may appear that tells you to place the program disk into drive one if it isn't there.

Return to the Set-up Menu - Choice Z

This returns you to the Set-up Menu. Press Z and the RETURN key. A prompt may appear to tell you to insert the Program disk into drive one if it isn't there.

Use of Painter Power Advanced Features for Various Effects

Each of the following sections describes how to use certain combinations of features to achieve various effects. These effects can be applied at different stages in the evolution of your painting. For instance, one might be used to set up the initial background texture while another might be used at the finish of a painting to blend different areas.

Since Painter allows you to create any sort of pattern and then use it as either a brush or a stroke, the possibilities are only limited by your imaginative use. Brush patterns extending across the screen can have a more picture-wide effect while the smaller brushes will have a more localized effect.

Creating a Staircase Pattern

Bring up the monitor screen and set the speed to Snail. Press the M key so a brush can be made. Hit the Y key repeatedly (or press Y and the REPT key simultaneously) to create the vertical part of the step and the J key for the horizontal. To create evenly sized steps, watch BRSIZ on the control display to keep track of the number of points in each direction. If you overshoot the exact number you want, use the arrow keys to correct the overage. When you are through, press the M key again. You may then use the staircase brush as a painting tool or you may use it as a stroke by loading it as the brush pattern choice of option three, Stroke Pattern and choose another brush to paint with. That brush will follow the movement of the staircase by releasing keyboard control.

Painting ZigZags

Creating the ZigZag pattern has already been covered earlier in the manual in REVERSE MODE/ZIGZAG DESIGN. Refer to that section. To paint a zigzag design, create some sort of brush, preferably a small one. Then bring up the picture screen by hitting the P key. As in the earlier zigzag section, use the Z and X keys to lock the horizontal and vertical movement. Then hold the CTRL key down and press either the G, J, Y or N key to get the brush moving at a diagonal. Put your brush down by pressing the U key and station two of your fingers over the ',' and '.' keys. With as many fingers as possible from your left hand, strike the color keys one through eight. Use the right hand to direct the zigzag by hitting the reverse keys (',','/','.').

Additional Uses of Keyboard Controls of Hold/Set/Reverse

If you set both the horizontal and vertical controls as above, you will mostly be confined to zigzag types of brushes and movements. You may, however, choose to control just the horizontal or just the vertical and allow the other to be controlled by the paddles or another pattern. For instance, you may create a wavy pattern or movement by setting the horizontal direction/level indicator to 001 (the Z key should be on and then press a CTRL G or CTRL J), and varying the vertical movement with the up/down paddle. To do this, set the Stroke Pattern (option three) to paddle control. Turn the horizontal control off by pressing the Z key. The brush will begin moving at a diagonal when the space bar is pressed. Now use your up/down paddle to direct a wavey movement. When you are ready, put your brush down.

You can take this a step further by doing the above procedure in the Make mode to create a wavey brush pattern. Then make the pattern your stroke pattern (option three). Now choose another brush to paint with. After returning to the picture screen, turn the horizontal and vertical hold controls off (Z and X keys). Press the space bar and the brush will move in a wavey line. You may then use the Reverse keys (',' and '.') to tell the program to reverse the horizontal/vertical movement of the wave.

Using the Five Painting Modes to Connect/Blend Areas of a Picture

The last three of the five painting modes (PMODE keys #, $ and %) serve well to integrate the different areas of a picture. The reason they are good, as well as the reason they were designed into the program, is that instead of replacing the existing color on canvas, they interact with the colors there based on the current color you are painting with. (The Complement mode -- % key -- is the one exception since it does not depend on your currently selected color). Thus the form or shapes that are in an area of the screen are retained while only the color information is altered.

Since the color is only altered where you move your brush, you can connect areas of a picture by moving the brush over parts or all of the areas you wish to connect. For example, let's say that you wished to give your painting a darker tone. To do this you would use PMODE $. You should use a fairly small brush so that you do not inadvertently affect too much of an area. Direct the brush to the areas which seem too bright. Referring to the color chart in the section on Painting Modes, select the color which will optimally interact with the colors that are on the screen. Then put your brush down and direct it over the areas you wish to change. You should be careful not to go over the same area with two different colors from the same color family. Blue and orange, for example, will combine to become black. You will lose any detailing that was in that area of the painting. Green and orange, however, will replace one another and no detail will be lost.

Varieties on this technique of blending can be achieved by moving the brush in such a way that it skips or by using a brush with gaps. You may also use the Complement mode but you must be careful since this painting mode can reduce your picture to detailed mincemeat!

Controlling Texture

The texture of your painting is controlled by:

1) The simplicity of the brushes you use.

2) The simplicity of your strokes.

3) The number of times you change colors in painting.

By adjusting any or all of these, you can achieve a variety of textures. For example, by using a simple brush moving in one direction with occasional color changes, you create a simple pattern with a solid texture. If you go over the same area again with different colors skipping sections, then the form remains the same but the texture becomes more detailed. If you create a brush which has gaps, then almost any way you move it you get a detailed texture. If you change colors frequently, detailed texture is also created. Since the Complement mode changes colors automatically, it is an ideal way to heighten the intensity of the texture in a given area. You can paint an entire picture using it. Just start with a blank screen, turn on PMODE by pressing the '%' key. The more the brush moves around, the more intensely detailed the texture will become.

Painting with a Changing Brush

This is a painting technique whose very special effect is quite hard to predict. Bring up the monitor screen and set brush size control to one of the paddles (option four). Set the paddle so that the BRSIZ indicator reads 50. This is a good starting value. Later you may wish to experiment with altering the brush size. Set the Stroke Pattern (option three) to paddle control as well. The first 50 points of whatever brush you were last using should be displayed. If you decide to change brushes (through option two), only the first 50 points of that brush will be displayed. Now turn on the Make mode. Do not be alarmed if the brush doesn't disappear as it normally does. With these settings, it's not supposed to. Press the space bar and use the paddles or keyboard as you usually do to direct movement. The brush will begin unravelling and changing according to your paddle or keyboard commands. The difference here, with the Make mode on, is that the entire brush is already displayed. The number of points that compose the brush correspond to the paddle setting you entered before turning this mode on. You will note that if you are using the paddle that is not set to Brush Size (option four) for directing the movement, the brush stretches out with gaps between the points while maintaining the set size. The program makes a blirping sound as the brush moves around. Each time a movement is initiated the blirp sounds and the brush moves to that command. When the entire brush has completed the movement, the blirp sounds again.

After you have gotten the feel for this effect, bring up the picture screen and put the brush down (keeping the Make mode on). Begin to paint. Try different paddle settings with different size brushes. Some of the best graphics can be achieved by entering a spiral with the brush up (a joystick is best for this) and putting the brush down just at the end of the spiral. The spiral will then unwind leaving a spectacular trail. For even more bizarre effects, you may use Locate and Quickstroke while painting with the changing brush. You may also use a pattern as the current stroke (load option three).

Exploiting the Apple's Hi-res Color Plotting Limitations

As explained on page 19 of the Apple II Reference Manual, there are limitations to how colors may be placed on the screen. Due to these limitations, you may have noticed that when you paint with green, orange, blue or purple that the entire brush pattern is not always painted. On the other hand, when white or black is the paint color, you may see fringes of orange/blue or green/purple depending if the selected black and white color is Black/White I or Black/White II. Generally, it is the latter limitation which can be exploited to produce the prettiest effects.

To explore this effect, create a brush that is a solid vertical line. Then go to the picture screen and set the background color to black (6) using a CTRL B. To see your brush, change the current color to white (3). Put your brush down and move it horizontally across the screen. It paints white. Set the horizontal direction/level indicator to 002 by pressing either a CTRL G or J. Press the space bar to continue painting. The color that now appears is green. Press the CTRL G or J a second time so that the the horizontal indicator numbers reads 003. Blue stripes appear. Switch the background color to black (8) and then the brush color to white (7). Orange and stripes will be painted depending on what the horizontal indicator is set on.

To go back to the original white color, just press the directional key (CTRL G or J) that is opposite of the key you were using the same number of times until the horizontal indicator reads 001.

Try using the Complement painting mode (%) to achieve a continually shifting screen. This limitation can also be exploited further in this way by using strokes and brushes whose combined effect causes dots to be plotted at a minimum of every other point.

Combining Several Patterns into One Pattern

This procedure is useful for creating patterns to be used as specialized brushes or strokes. For example, the shape you would like to achieve is a lollipop. You will need a circle created from the math function. Load one using the disk menu if you have already saved a circle pattern or create one. The second component for this pattern is a straight line. Brush no. eight would be good to use. Load brush no. eight as your stroke pattern (option three). Set brush and stroke sizing (options four and five) to normal. Now choose a brush pattern through option two that you don't mind losing to be replaced by this new pattern. Set the program to Snail speed, turn off KB-HOLD (Z and X keys), turn the Make mode on and press the space bar. Brush no. eight will begin to take shape. Press the REPT key if you would like to quicken the process. When enough of brush no. eight is on the screen that could serve as the stick of the lollipop, press the space bar to stop movement. Remember, you may edit the shape of the brush by pressing the arrow keys.

Leave the Make mode on. Now you must load the second part of the brush as the stroke pattern. Press the space bar after the circle has been loaded and lollipop shape will become recognizable as the circle displays itself point by point. When the pattern is complete, turn off the Make mode.

You may create some interesting patterns by taking a brush and making it a quickstroke and then loading the quickstroke as your stroke pattern.

Relating Color with Motion

This effect utilizes the options for selection of color by paddle and creation of a custom color table (see section covering Color Table - Option 7). The way in which you relate color with motion is to use the identical paddle for determining both the color and the horizontal or vertical direction. Both the horizontal and vertical paddles create movements in the range of -004 to +004 (this is seen on the horizontal and vertical indicator). These movements correspond to the eight color numbers on the Color Table as seen below. The table shows the colors as they are set on the table when the Set-up Menu is initially displayed after booting the program. The Color Table feature allows you to set these colors as you wish.

Therefore, you may find it helpful to copy this table onto a piece of paper, assign your own colors to the movements and then use the Set-up Menu to alter the Color Table. The columns directly below the first column grouping reflect a sample setting.

Vertical	Horizontal	Clr.#	Init.Clr.
+3	-3	1	Green
+2	-2	2	Purple
+1	-1	3	White I
0	0	4	Orange
-1	+1	5	Blue
-2	+2	6	Black II
-3	+3	7	White II
-4	+4	8	Black I

Example	Clr # Set	Vert.Mov.	Hor.Mov.
#1	Blue(5)	+3	-3
#2	Blue(5)	+2	-2
#3	Blue(5)	+1	-1
#4	Black(6)	0	0
#5	Black(6)	-1	+1
#6	Orange(4)	-2	+2
#7	Orange(4)	-3	+3
#8	Orange(4)	-4	+4

Let's say that you wished to have the paint color be blue when the brush is moved up, black when its on a level plane and down slightly and orange when moved down. You would set color number settings one through three to blue (color #5), color number settings four and five to black (color #6), and color number settings six through eight to orange (color #4). Set Color Selection (option six) to paddle two, the vertical paddle, and the current stroke pattern (option three) to paddle control. All that would be left to do would be to create a brush that would maximize the effect of these settings. A simple brush that would be good to use would be a vertical line.

Using Quickstrokes and Locate to Create Patterns

You may use a quickstroke in the creation of a brush pattern by repeatedly entering the same quickstroke into a pattern or by creating individual quickstrokes and entering them one by one. Using the Locate mode, you may locate an area where subsequent entry of points in the pattern are to resume. With quickstroke and Locate used together, you can create a segmented pattern of quickstrokes.

Let's say that you wished to create a pattern containing the same stroke, with each stroke separated by 20 points. First you would create a quickstroke by turning on Visualize (V key) and Quickmode (Q key). Once the desired stroke is created, turn off these modes, set Snail speed and turn on the Make mode. (Keep in mind the brush size of your quickstroke while you are altering its shape. Remember you are restricted to a maximum of 255 points per brush so a small quickstroke would be best.) To enter the first quickstroke, hit the ';' key. Leave a gap of 20 points by turning on Locate and using the G or J keys to place the next quickstroke to the left or right. Now hit the ';' key again for the second quickstroke. There is no need to turn off Locate since entering a quickstroke overrides Locate. Do as many quickstrokes as the brush can contain or until you are pleased with the design. Turn off the Make mode when you are through.

If you wished to enter four different quickstrokes into a pattern, enter your initial quickstroke with the Make mode on. Leave it on and turn on Visualize and Quickmode to create the second quickstroke pattern. When you are satisfied, turn these two modes off and press the ';' key to execute the second pattern and so on. Use Locate if you like to separate the different patterns.

Using Keyboard Override with Math Patterns

Keyboard override refers to the fact that use of the keyboard control keys Z, X, Y, N, G, J and H overrides the current stroke. To illustrate how this works, load one of the math patterns, such as a spiral, as the stroke (option three). Choose brush no. two as your painting tool. Bring up the picture screen and give control of the brush movement to the paddles by turning off the Z and X keys. Put your brush down and press the space bar. A spiral design will paint itself across the screen. Stop movement, turn keyboard control back on by pressing the Z and X keys and press a CTRL G, J, N or Y depending on the direction your brush was moving. If you entered a CTRL N, for example, leave the Z key off and turn the X key on and press the space bar. The resultant pattern that appears is a wavey line like a sine or cosine. If you press the CTRL N again or a CTRL Y (to reverse the effect of the CTRL N), you may spread or shrink the distance between the bumps of the wavey line. You may also try using the Reverse keys (',' and '.') to switch directions making the brush snake backwards or forwards reversing the direction of the bumps.

Generally it is only useful to override one of the keyboard control keys at a time. If both are overriden, the math pattern is totally suppressed and the resulting movement is a straight line. You may save the pattern as a quickstroke or as brush/stroke.

Experimenting with Large Keyboard Vectors

The use of large keyboard vectors is an extension of the use of the keyboard to control brush movement in an area larger than the normal screen. As you have learned in a previous section, the normal range of the paddles is -003 to +004 (as reflected by the horizontal/vertical control display indicator). The large keyboard vectors are set by turning on the Hold Horizontal or Hold Vertical mode (Z and X keys) and then repeatedly striking a CTRL J, G, Y or N keys. This causes the the program to make the current brush leave dollops of color all over the screen with large gaps in between. With Wraparound on, (W key), the screen is rapidly covered with the pattern of the current brush.

For example, turn Hold Horizontal and Hold Vertical on. Press the REPT and CTRL Y keys until the vertical indicator reads at least 15 or more. Set the horizontal indicator to a low number such as two by pressing A CTRL G or J. This brush pattern will then be repeated all over the screen in a blink of the eye (if Blitz speed is set) in a vertical column with a slight list to the right or left. Try changing the horizontal and vertical components, after clearing the screen, to see what results that way.

Use of a large keyboard vector is most interesting when used in conjunction with the Complement painting mode ('%' key). You will get an ever changing picture which will go through complicated phases, yet will amazingly always restore itself to what it was originally when you first turned the mode on (provided you didn't change anything while it was going through its phases.

Creating a Slide Show

A slide show consists of a list of slides (up to 50), with optional titles, placed in whatever order you choose, from however many disks they are stored on and computed to be displayed as long as you like. (A picture can be automatically displayed for as long as 60 seconds. If you want to see a slide longer than that, press the S key). Press C from the Program Selection Menu. This brings up the Slide Show Creator/Editor screen with a prompt asking for a name for your slide show. Type one in. The next prompt asks you to designate which drive your slide show disk will be operating from, one or two. Press the number that applies. At the bottom of the screen, a list of options appears. They are:

A) Enter Next Slide (#)
B) Change/Delete/Insert a Slide
C) List Slides on Screen or Printer
D) Write Slide Show to Disk
E) Disk Catalog
F) Return to Menu (Abort)

OPTION:

Press the letter of the option you need and then RETURN.

Enter Next Slide (Option A)

A prompt appears at the top of the screen SLIDE # 1: and below it a place to type in the name of the slide you would like to be first. Enter the disk file name and be sure to type the file extension name. For example, type MONA LISA.PIC and press the RETURN key. Another prompt appears that asks which drive the disk with the picture is to be found in. If you are working with one drive, obviously its drive one; press number one or the RETURN key. If it's in drive two, press RETURN or the number two. (The prompts for entering which drive the picture is in change in accordance with the last drive used. Be sure to read these prompts carefully.) The picture will be brought forward with a prompt at the bottom asking you to THINK of a title for this picture. Do not type the title in. Press any key and the Slide Show Creator/Editor screen reappears with a prompt MESSAGE:. Now type in the title for the picture, or a short description, you would like to appear under the slide and press RETURN. If you do not want to type in a title, press RETURN and the file name for the picture will appear.

If you have graphics (made with another program possibly) whose perimeters are larger than Painter's and need the full screen size for display, press F in the message line. When you run the slide show later, the entire screen area will be filled with the oversized image.

Another prompt appears asking you to specify how much time you would like this picture to be displayed. The minimum is seven seconds and the maximum is 60. Type in the time and press RETURN. You are now ready to set up the second slide for your show. Press A.

If you have pictures stored on a number of different disks, and the order of the pictures you have in mind would necessitate switching from one disk for one picture

to another disk for the next (or you have only one disk drive to work with), you may type the word PROMPT in lieu of the disk file name. Painter then asks that you enter the drive number that the other disk should be placed in. Press the appropriate key. When you actually run the slide show and the program reaches the point where the prompt has been placed, either one or two beeps will sound (depending on which disk drive you designated for this prompt). Painter is reminding you to place the disk with the next image in the sequence into the correct drive. After the MESSAGE: line, where you normally type in the alternate picture title, you may type in a more specific reminder of exactly which disk should be put into drive, such as "Image Disk 45 in #2." This message will appear on screen during the show. A time will not be set because no slide will be shown. Having a prompt, like the one just described, takes the place of a slide. The slide that you set up next should be the one the prompt was for. Follow that slide with another prompt to remind you to switch disks again. At the end of your show, you may only be showing ten slides, but Painter counts all of your prompts as slides as well. It may read that 14 slides are in the show.

Continue in this manner until you have listed all of the pictures you want to display for your slide show. When you are finished, bring up option D, Write Slide Show to Disk.

Write Slide Show to Disk (Option D)

You will need a blank, initialized disk to retain this slide show. After pressing D, a prompt appears W)RITE SLIDE SHOW TO FILE followed the the slide show title with the file extension name .MOV' directly after it followed by ON DRIVE 2. (The file extension .MOV is automatically attached to your slide shows to differentiate it from pictures or brush patterns.) The second prompt reads S)PECIFY A DIFFERENT FILE. If you want to save this slide show as is, insert the disk you want it stored on and then press W. The program will then write the show to that disk.
You may then work on another slide show if you wish to by pressing Y for yes.

SPECIFY A DIFFERENT FILE (press S) brings up the prompt for the slide show name and which disk drive it should be stored to. If you initially designated drive one at the beginning of making up the slide show, the prompt WRITE SLIDE SHOW TO FILE...automatically appears and reads drive one. If you've changed your mind about the title and which drive to use, you may change it now. If you are through putting together slide shows, type N to the prompt that appears after the show has been written to the disk. You are then prompted to insert the Program disk and press RETURN. The Program Selection Menu then appears.

Change/Delete/Insert a Slide (Option B)

After mulling over your slide show presentation for a while, let's say you have second thoughts about the slide order or what slides were included. To make any changes to an existing show, press C from the Program Selection Menu. The slide show name prompt appears; type in the title of the show you want to work on and answer the next prompt for the drive the disk is in. Painter then tells you how many slides are presently in the show and asks that you press any key to continue. The option menu reappears. Press B. You are now prompted to select a slide number (pressing RETURN brings up the option menu). Press the number and RETURN.

Information about that particular slide appears at the top of the screen. Below you are given a choice to either I)nsert, D)elete, C)hange or affect N)o Change. Press I for INSERT. This brings up the same prompts you are now familiar with from initially entering slides into the show. The procedure is the same. When you are through inserting the new slide, press any letter to continue. You will note that your slide show now has one more slide than it did before. Inserting the new slide just moved the order over by one slide from whatever point you inserted it. That is, if you chose to insert your new slide in the place of slide no. 1, the old slide no. 1 then became slide no. 2.

If you wish to delete a slide from the show, press the number of the slide to be deleted and then D. You are then asked to confirm the deletion by pressing Y. If you change your mind, press N and the deletion will be cancelled.

To simply exchange one slide for another without adding more slides to the show, press C. The same prompts appear that you know from entering the slide show initially. Follow the same procedure.

If you bring up a slide to do something and then change your mind, press N for No Change. Be sure to save your changes by writing it to the disk through Option D.

List Slides on Screen or Printer (Option C)

You may either display or print the information on file about a slide show. After pressing C from the Program Selection Menu, type in the slide show name and what drive the disk that contains it is to be found in. From the Slide Show screen, press C. A numerical listing of the slides in that show will appear on screen if you pressed S for a screen display. The listing tells you the the file name with the file extension (MONA LISA.PIC), what disk this slide is to be found on, the length of time it is displayed during a show and what the title of the slide is.

If you want a printout of the above information, press P. The program will ask you which slot in your computer your printer card is placed (one through seven). Press the appropriate number, turn on your printer and press RETURN.

Disk Catalog (Option E)

To catalog your disk, press E and designate which drive the disk is in by pressing the appropriate number.

Return to Menu (Option F)

Press F to return to the Program Selection Menu. A prompt will appear that asks if you are sure. Press Y if yes and N if no.

Running a Slide Show

From the Program Selection Menu, press D. The Painter Power Slide Show monitor screen is brought forward with a prompt asking you to type the name of the slide show you wish to run. Type it in and press RETURN. Answer the next prompt for which disk drive the disk with the show is in with the appropriate number and RETURN.

Verifying/Running a Slide Show

Two options appear on screen:

1) For you to tell me on which disk drive the slides are located.

2) For me to figure out where the slides are by using the disk drive number originally stored with each slide.

Select option one or two.

These two options will either verify all the slides that are present on the disks you prepared or run the slide show. After selecting the option you wish to use, a prompt will appear asking if you wish to verify the program. If you type Y, the program will then look for each slide and will report those it cannot find. (The only reason the program will not be able to find a slide is because you probably do not have the right image disk in the correct drive.)

When it has cycled through the entire slide show, it will ask again if you wish to verify the show. This time press the N key. This tells Painter to start running the slide show. When you are actually running the show, any missing slides will simply be ommitted from the sequence. The entire sequence will be repeated ad infinitum until you hit a CTRL C which will return you to the Program Selection Menu.

Option 1

The purpose of this option is to override the original direction you gave as to which disk drive the slide show is to be found. Let's say when you initially created the slide show you had the Program disk in drive one and the Image disk that was to retain the slide show in drive two. You answered that first prompt for which disk drive the slide show is to be run from as drive two. The first prompt that appears for this option asks which drive the slide show is in. You would now like to run the slide show (after booting the Program), without the Program disk in drive one and place the disk with the slide show into drive one instead (and possibly another image disk into drive two). You answer the prompt, in this case, with drive one.

The next prompt asks if you wish to verify your slide show (Y/N). Press Y. The program then moves to the drive that you designated to look for the first slide. Pay attention to the beeps that sound. They will key you as to when disks should be changed so the slide show continues. If you forget to insert the right disk at the right time, Painter will tell you it cannot find that file.

If you programmed prompts in the slide show, with or without messages, the title of the slide that is displayed just before a prompt will flash momentarily. The graphic will remain on screen, but any message that is part of the prompt will be displayed below it instead of the title. Painter will then stop so you may follow the direction of the prompt to switch disks. To restart the slide show (either while verifying or running it), press any key and the slide show will continue.

Slide shows that have no prompts as part of the sequence will run continuously as long as the proper image disks are in the appropriate drives. Hit a CTRL C to stop.

Option 2

This option functions in the same way as just described above. In this case, the Image disks are in place in the original drives they were in when you initially created the slide show.

Running a Slide Show

To run a slide show, simply press the N key in response to the verification prompt. If you would like to view a slide for a longer time than originally programmed, press the S key the moment the slide appears on the screen. The slide will freeze until you hit any character to continue with the sequence.

List of Painter Power Beginner Keyboard Commands

B Key. Tells Painter to move at its fastest pace -- Blitz speed.
R Key. Tells Painter to move quickly at Rabbit speed.
S Key. Tells Painter to move at its slowest pace -- Snail speed.
T Key. Tells Painter to move at its next slowest pace -- Turtle speed.

G Key. Move left.
J Key. Move right.
N Key. Move down.
Y Key. Move up.

H Key. Holds/releases horizontal/vertical movement. Functions like the space bar.

M Key. Allows to to begin/end making a new brush.

C Key. Clears the screen of all painting design and leaves only the background color.
P Key. Brings up the picture screen from the monitor screen; returns to the monitor screen from the picture screen.
U Key. Lifts brush up; puts brush down.
W Key. Turns wraparound off/on.

ESC Key. Returns you to the Beginners' Menu from the monitor or picture screens.
REPT Key. When used simultaneously with either the space bar (in Snail speed) or the arrow keys, the brush moves more rapidly (while painting or while being made).
RETURN Key. Brings up the monitor screen from the Beginners' Menu; returns you to the Beginners' Menu from either the monitor or picture screens.
Space Bar. Halts/resumes all brush movement and painting; moves brush one point at a time in Snail speed.

1 key paints green; 2 key paints purple; 3 key paints White I; 4 key paints orange; 5 key paints blue; 6 key paints Black I.

0 (zero) Key. Forces brush back onto the screen when it is momentarily out of sight while circling to the opposite side of the screen.

':' Key. Sets a stop to control how much painting may be erased by hitting the '-' key.
'-' Key. Erases the part of your painting done since last time you hit the ':' key.

← Key. Remove one point from brush.
→ Key. Add one point to the brush.

'/' Key. Gives control of the brush to the paddles.

List of Painter Power Advanced Keyboard Commands

None of the keys that are in the Beginners' Keyboard Command list that also apply to the Advanced list will be repeated below.

A Key. Brings up Painter Power Graphics from the Set-up Menu.

CTRL B. Changes background color to currently selected color.

CTRL C. Stops opening Painter Power title graphics and brings up Program Selection Menu; stops slide show.

CTRL E. From Set-up Menu: turns Stop on, Visualize and Paint off, lifts up brush.

CTRL G. Directs movement to left at an angle.

I Key. Remembers location to return to while making a brush (O key -- letter -- returns to the location set by the I key).
O Key (letter). While making a brush, returns to pre-set location set by I key.

CTRL J. Directs movement right and at an angle.

L Key. Allows a brush, or a point that composes a brush, to be separated from the design, or pattern, and moved to another location.

CTRL N. Directs movement down and at an angle.

Q Key. Allows quickstroke shape to be changed when used in conjunction with the V key.
CTRL Q. Changes quickstroke to brush pattern currently loaded in Stroke Pattern (option three).

S Key. Freezes slide for longer viewing while running a slide show.

V Key. Allows you to see current quickstroke; allows you to change shape of quickstroke when used in conjunction with the Q key.

X Key. Controls vertical movement; passes movement control to paddles when Z and X keys are off.

CTRY Y. Directs movement up and at an angle.

Z Key. Controls horizontal movement; passes movement control to paddles when X and Z keys are off.

7 Key. Paints White I.
8 Key. Paints Black II.

9 Key. Remembers screen location of brush at time key is hit (0 key returns it to that location).
0 (zero) Key. Returns brush to screen location set by 9 key.

ESC Key. Returns to Set-up Menu from either the monitor or picture screens.

RETURN Key.
- Sets any changes made to options.
- Brings up monitor screen from Set-up Menu.
- Allows an option change to be made on monitor screen.
- Sets changes made to options from monitor screen; recalls Control Display.
- Brings up monitor screen from picture screen.

Space Bar. Turns Stop on.

'!' Key. Normal painting mode
'"' Key. Allows brush to continue moving across the screen without affecting the picture; used when switching painting modes.
'#' Key. Black portions of painting changed to currently selected color.
'$' Key. White portions of painting changed to currently selected color.
'%' Key. Complementary Color Mode (see table).

';' Key. Executes a quickstroke; resumes previous painting activity from end of stroke.
'+' Key. Executes a quickstroke; resumes previous painting activity from beginning point of stroke.

',' Key. Reverse horizontal
'.' Key. Reverse vertical

'/' Key. Passes movement control to paddles in Locate mode.

'?' Key. Control Display disappears and reappears.

BLOWN DISKS

If your disk does not operate within 30 days of purchase, return the disk in the protective covering along with a copy of your sales receipt for free replacement. After 30 days, send your disk in the original, protective envelope along with $5.00 for replacement.

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